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Ohio Fertilizer Recommendations 1950-51

For Field Crops, Permanent Pastures and Hay Fields

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For soil building and conservation, the average annual fertilizer usage for the rotation should equal or exceed 200 pounds per acre, with the heavier applications on the more responsive crops.

High Quality Sod Crops Essential.—It is important that every farmer adequately fertilize the small grain crop in which legumes are to be seeded. On the average farm, this is the most important fertilizer application of the rotation.

The regular fertilization of permanent pastures and of meadows used for pasture or hay, to be kept for two years or more, is essential and profitable.

Other Soil Management Practices for Productivity Maintenance.—Best returns from commercial fertilizers are obtained where other sound soil management practices are a part of the program.

Lime should be applied as needed to control soil acidity and supply calcium and magnesium, essential plant nutrients. Most field crops and especially the "high-powered" legumes—alfalfa and sweetclover—do best when soils are limed to approximate neutrality.

Manure is a perishable product—the nitrogen and potash are rapidly lost by careless handling and storage in open barnyards. Whenever practicable, manure should be stored under cover or hauled directly from the stable to the land. Fall and winter top-dressing of wheat with 5 to 8 loads of manure per acre helps insure meadow crop seedings, particularly on light-colored soils. Where wheat frequently lodges, only strawy manure should be used.

Under cash grain systems of farming, straw and stover should be left on the land. When the straw from a small grain crop is sold, to help get the new seeding established or for other reasons, the mineral nutrients removed per acre are equivalent to those found in about 100 pounds of 0-9-27. Each ton of alfalfa hay sold contains approximately 10 pounds of phosphoric acid and 40 pounds of potash.

Legume-grass sod crops are the most effective means of renewing favorable soil structure or "tilth." Soil depleting row crops like corn, soybeans and sugar beets should be grown in rotation with good legume-grass sod crops which restore organic matter, nitrogen supply and "good tilth."

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Thick-growing sod crops are the backbone of conservation farming in Ohio, but they cannot do the job alone on rolling or hilly lands. Strip cropping, contour farming, terracing and other conservation measures are recommended to keep soil, water, organic matter, lime and fertilizer at home.

Grades and Analyses.—The series of figures by which a grade or analysis is designated expresses the percentage of total nitrogen, available phosphoric acid and water-soluble potash, respectively.

The grades of mixed fertilizers recommended for manufacture, sale, and distribution in Ohio in 1950-51 are:

Ratio	*Grades*	*Ratio*	*Grades*
0-2-1	0-20-10	1-4-4	3-12-12
0-1-1	0-12-12	1-3-6	3- 9-18
	0-20-20		
0-1-2	0-10-20	1-3-2	4-12- 8
0-1-3	0- 9-27	1-2-2	5-10-10
1-1-1	8- 8- 8	2-1-1	10- 6- 4
		1-4-2	4-16- 8

General Principles.—Phosphate fertilizers are needed by all crops on all Ohio soils.

Potash needs are highest on sandy and muck soils. The need for potash is less when crop residues are left on the fields regularly, or when the crops are fed and the manure returned to the fields with as little loss as possible.

Less nitrogen is recommended on productive soils where legume sods or green manure crops are plowed down regularly, where good yields of corn are obtained, and where the grain crops produce a large straw growth and lodge. On less productive soils, corn and the grasses will respond to heavy applications of nitrogen.

Corn.—On productive soils the planting rate should be at least 15,000 seeds per acre. Hill or row applications are recommended for all conditions: 300 to 400 pounds for drilled corn or as a row application on checked corn. Hill applications should be limited to 150 lbs. per acre. The same applies to sweet corn.

Productive soils.....0-12-12 or 0-20-10
Less productive soils.....3-12-12, 4-12-8, 4-16-8 or 5-10-10
Sandy and muck soils.....3-9-18

On the less productive soils, and where there is likely to be a shortage of nitrogen because crop residues, grass sods, strawy manure, etc., are plowed under, nitrogen carriers supplying 40 to 50 pounds of nitrogen per acre may be used with 300 to 400 pounds of 3-12-12 or 4-12-8 drilled in the row. The nitrogen fertilizer may be broadcast before plowing or banded on the furrow bottom with a plow attachment. It may also be applied as a top-dressing at the last cultivation.

Fifty pounds of nitrogen may be supplied in an application of 250 pounds of sulfate of ammonia or cyanamid, 150 pounds of ammonium nitrate, or 325 pounds of nitrate of soda.

For sweet corn for canning, use above complete fertilizer in row or hill.

Small Grains.—Four hundred to five hundred pounds per acre are recom-

mended when a meadow seeding is made with the grain crop. This may be reduced one-third when a seeding is not made. Grades containing only phosphoric acid and potash are recommended on productive land where the grain is likely to lodge and where wheat is sown on or immediately following the fly-safe date. Four hundred to five hundred pounds of fertilizer containing nitrogen are recommended on land where the wheat is not apt to lodge or where the seeding of grain is delayed following soybeans or corn.

Productive soils.....0-20-10 or 0-12-12
Less productive soils.....4-12-8, 3-12-12 or 4-16-8
Sandy, muck and peat soils.....3-9-18

A spring application of 20 to 30 pounds of nitrogen per acre may be profitably made on wheat fertilized at seeding time but which has not made a good growth. This is recommended for the less productive soils and for late seeded wheat following corn and soybeans. This application may be broadcast in March in southern Ohio and from March 1 to April 15 in northern Ohio.

When oats is not likely to make a good growth and the variety is not likely to lodge, the above nitrogen application may be plowed under or applied at seeding time in 8-8-8 or other grades high in nitrogen.

Established Alfalfa and Ladino Clover Hay or Pasture.—Liberal applications of fertilizers high in potash are especially important. Annual applications of 200 to 300 pounds per acre of 0-10-20, 0-9-27 or 0-12-12 are recommended to maintain high yielding meadows and pastures. Heavy potash applications may be applied immediately after harvesting the first hay crop.

New Seedings.—Experimental work indicates that 150 to 200 pounds of 0-20-0 may be profitably run down the tube with the legume seed when seeding in wheat with a disk drill.

Legumes profit from the fertilizer application on oats when hose or tubes from the clover seed box are arranged to drop the legume seed just back of the disks and over the band of fertilizer applied with the oats. This method is recommended for seedings made without a companion grain crop.

Timothy or Other Grass Meadows.—Apply phosphorus and potash as suggested for alfalfa meadows. Apply 40 to 60 pounds of nitrogen broadcast in fall, winter or early spring, to increase yields of hay, pasture or seed. (See corn fertilization for nitrogen carriers.)

Permanent Pastures.—Initial treatment, 400 to 500 pounds per acre of 0-20-0 or 0-20-10. Later, apply 400 to 500 pounds per acre of 0-20-10 or 0-12-12 every third or fourth year. (0-20-0 if field is completely and regularly manured.)

To advance the date for early spring grazing, apply on fair to good grass sods, 40 to 60 pounds of nitrogen per acre in fall, winter or early spring. (See corn fertilization for nitrogen carriers.) Treat ⅓ to ½ acre per cow. When nitrogen and mineral fertilizers are to be applied the same year, 600 pounds per acre of 8-8-8 may be used.

Soybeans.—On acid soils, soybeans give a marked response to applications of limestone. Soybeans give less response to direct applications of fertilizers than do other field crops. The most profitable way to fertilize a soybean rotation is to increase the rates of fertilization on the responsive crops, such as corn, sugar beets, truck crops or the small grains in which meadow seedings are made. If soybeans are grown continuously on a field, 200 to 300 pounds of 0-12-12 per acre should be applied every year in a manner that avoids contact of the seed with the fertilizer. The same application is suggested if soybeans grown in rotation are to be fertilized.

Potatoes.—

Early planted..... 1500 lbs. 5-10-10 in row
Late planted..... 1500 lbs. 3-12-12 or 5-10-10 in row

When field is manured, use 50 pounds less fertilizer for each spreader load applied.

Tobacco.—For cigar filler, 600 to 800 pounds of 3-12-12 in the row, but not in contact with the plants is recommended.

For white burley tobacco plow under, or work into the soil immediately after plowing, 1,000 pounds of 8-8-8 with half the potash in the sulfate form. Apply 300 to 600 pounds of 4-12-8 or 3-12-12, preferably with half the potash in the sulfate form, in the row. An alternative treatment is the use of 600 to 800 pounds of 3-12-12 or 4-12-8 with a rye or rye grass cover crop in the fall and the plowing under of 60 pounds of nitrogen in the spring, with the row application recommended above.

Sugar Beets.—Profitable sugar beet production depends on a productive soil in a high state of tilth. A favored place for the beet crop in the rotation is following a 2- or 3-year-old manured legume-grass sod.

Row fertilization of 350 to 400 pounds per acre of 3-12-12, 4-16-8 or 4-12-8 (3-9-18 on muck soils) is recommended; and where beets follow grassy sods and/or an application of strawy manure, additional nitrogen at the rate of 50 to 60 pounds per acre broadcast and plowed under, or 600 pounds per acre of 8-8-8 on the furrow bottom, has on the average been an economic practice.

Canning Tomatoes (*Basic application*).—Apply 600 to 1,000 pounds per acre, either as a plow-under application or drilled deeply after soil is fitted, of one of the following grades: Soils high in fertility on which legumes have been grown regularly, 5-10-10 or 3-12-12; lighter colored soils, or for soils on which few legumes have been grown or no manure applied, 5-10-10; light-colored heavy soils on which corn stover, straw or other strawy material is being plowed down, 8-8-8, to be used only as a plow-uunder application.

Maximum applications are recommended only on soil in good tilth from which maximum yields may be expected.

Direct Seedings. In addition to the above, apply in the row 2 inches below and directly beneath the seed, 200 to 300 pounds per acre of 3-12-12, 5-10-10 or 4-12-8.

Transplanting. Use a starter solution high in phosphorus, prepared according to directions with the material.